New Hampshire Regional Haze SIP Revision
Response to Federal Land Managers' Comments

NHDES received preliminary comments on New Hampshire's draft Regional Haze SIP from the U.S. Department of the Interior (DOI), National Park Service (NPS) and U.S. Fish and Wildlife Service (FWS) on August 27, 2008, and from the U.S. Department of Agriculture, U.S. Forest Service (USFS) on August 28, 2008. Final comments from DOI – NPS and FWS were received in a letter dated September 26, 2008. Final comments from USFS were received in a letter dated October 2, 2008. Conference calls to discuss the agencies' comments were held on August 28 and September 18, 2008, with representatives from NPS, USFS, USFWS, EPA, and NHDES in attendance. NHDES's responses to the FLMs' comments are described below.

Comments from the U.S. Department of the Interior, National Park Service and U.S. Fish and Wildlife Service

General Comments: DOI – NPS and FWS found New Hampshire's Regional Haze SIP to be well written and comprehensive. The vacatur of CAIR and discrepancies in modeling (especially inclusion of the MANE-VU Ask) between MANE-VU and other RPOs were identified as broad topics that warrant further discussion through the consultation process.

General Response: NHDES acknowledges that the vacatur (now remand) of CAIR has represented a significant difficulty for the states in attempting to comply with the Regional Haze Rule. While NHDES sees the unresolved CAIR situation as a complicating factor, it is not an absolute impediment to making visibility progress in the near term. For reasons explained in the SIP text, NHDES believes that future emissions and air quality levels under CAIR-successor scenarios are not likely to be vastly different from values predicted by MANE-VU's completed modeling, even though that modeling was based on implementation of a differently structured CAIR. Consequently, the reasonable progress goals and long-term strategy developed for New Hampshire's regional haze SIP still represent a defensible position from which to go forward with measures to improve visibility at MANE-VU's Class I Areas. In any case, New Hampshire will have the opportunity – and the obligation – to review the situation as it develops and to revise the SIP as required by no later than 2012.

Despite extensive consultations among the affected states, NHDES also acknowledges that not all states have included, or are likely to include, the provisions of the MANE-VU "Ask" in their SIPs. New Hampshire continues to hold that the strategies outlined in the Ask are reasonable. If certain states have chosen not to incorporate the provisions of the Ask in their SIPs, then it will be the responsibility of EPA, as established in the Regional Haze Rule, to find an acceptable resolution of any discrepancies among the individual states' plans.

Specific Comments/Responses: The following is a point-by-point response to specific comments submitted by DOI – NPS and FWS. Because the SIP document has been repaginated, reference is made to sections or parts instead of page numbers. **Comments are written in *italics* and responses are written in regular font.** (Comments related to typographical errors are omitted.)

1. The Regional Haze Issue – *"Recommend including footnote in text and discuss how the vacatur affected NH decision-making."*

A new subsection, 1.1 Regional Haze Planning after Remand of CAIR, has been inserted near the beginning of the document to address the effects of the original vacatur and subsequent remand of CAIR on New Hampshire's regional haze SIP. Also, references to CAIR that were included in the previous draft have been modified throughout the document to reflect the current situation.

1.4.3 Monitoring and Recent Visibility Trends – *"Since visibility monitoring is accomplished by one site for both NH Class I areas, recommend changing title and text to reflect Figure 1.7 would be trend information for both wilderness areas and not just Great Gulf as the current text implies. Or establish early on that Great Gulf will be representative of both Class I areas throughout the SIP."*

This part is now moved to 1.5.3. The text and titles have been revised there and elsewhere to clarify that the Great Gulf monitor serves the two New Hampshire Class I Areas. A statement to this effect has been added under 5.3 Monitoring Sites for MANE-VU Class I Areas.

1.4.3 Monitoring and Recent Visibility Trends – *"Recommend clarifying last set of bullets on trend plots. Since NHDES plots Worst Natural and Best Natural, the bullets should include this separation. For example, the worst 20% days are approximately 10 DV greater than Worst Natural. And the same is true for the second bullet, delineate which Natural trend line (worst or best) you are referring too."*

The last bullet in this part has been revised to provide greater specificity.

2. Areas Contributing to Regional Haze – *"Need to revise text to reflect the CAIR vacatur. Currently, the text states that there will be significant decrease in SO2 emissions due to CAIR."*

The vacatur and remand of CAIR has been noted. Please see response to comment for 1. The Regional Haze Issue.

2. Areas Contributing to Regional Haze – *"Recommend reminding reader that there is only one site for both Class I areas in NH and hence the decision to just include Great Gulf mass contributions OR include same figure titled Presidential Range-Dry River to reflect the state's knowledge of both Class I areas."*

Please see response to first comment for 1.4.3 Monitoring and Recent Visibility Trends.

3.2 Regional Consultation and the "Ask" – "Recommend clarifying that both formal *and informal consultation within MANE-VU has been on-going since establishment in 2001 with the bulk of formal consultation occurring in 2007 as outlined by Table 3.3."*

The last paragraph before Table 3.3 has been revised accordingly.

3.2.1 New Hampshire-Specific Consultations – *"The state provides a comprehensive summary of its consultation efforts taken within and outside MANE-VU. However, the state does not include the end result of its consultation efforts with each of those states (not including the Canadian provinces, which NH includes). As stated, NH sent letters to all MANE-VU states, but what was their response? Same comment applies to meetings with MRPO and VISTAS. If results are included in an Appendix, then a summary of those results should be included in the*

SIP text. Or recommend referencing future sections that deal with consultation issues and results, e.g., section 3.2.2.3 and Section 3.2.4."

Statements regarding consultations with other states have been added to 3.2.1 New Hampshire-Specific Consultations and 3.2.2.3 Meeting the "Ask" – States Outside MANE-VU. New Hampshire has not received individual responses from other states. MANE-VU did receive comments from VISTAS and the West Virginia Department of Environmental Protection (see attachment F).

3.2.1 New Hampshire-Specific Consultations – *"Reference to CAIR needs to be addressed."*

The vacatur and remand of CAIR has been noted. Please see response to comment for 1.0 The Regional Haze Issue.

3.2.2.3 Meeting the "Ask" – States outside MANE-VU – *"It is fair to state that non-MANE-VU states have not included the MANE-VU Ask in their SIPs, considering most of VISTA states have already submitted SIPs to EPA."*

Please see response to first comment for 3.2.1 New Hampshire-Specific Consultations.

3.2.5 State/Tribe and Federal Land Manager Coordination – *"The state can include the date of August 1, 2008 as the date submitted to the NPS/FWS."*

The indicated date has been added to the text.

3.2.5 State/Tribe and Federal Land Manager Coordination – *"Text should be more specific as to the availability of FLM comments for public review and comment prior to the SIP submission to EPA."*

The text pertaining to public review has been expanded and made more specific.

5.3 Monitoring Sites for MANE-VU Class I Areas, Figure 5.2 – *"Suggest including deciview measurements on the figure for context, same comment for Figure 5.4, 5.6, 5.7 (if deciview information is available), 5.10, 5.11, and 5.14."*

Deciview values are unavailable for the photos in these figures.

8.1 Fine-Particle Pollutants – *"Identifies OC as second largest contributor to haze but goes on to focus on large scale SO2 control measures. In Section 10.2.1, NH acknowledges the importance of OC but based on Contribution Assessment it is determined that an early focus on additional SO2 reduction is more beneficial than targeting OC emissions at this current time (page 87). Organic emissions will play a more important role as regional haze planning moves into future planning periods. Organic carbon emissions need to be identified in terms of fire emissions and a commitment to tracking these emissions should be included in section 11 under Agricultural and Forestry Smoke Management."*

Text has been added to the end of this part to explain the focus on SO_2 emissions and the comparative role of OC emissions. Also, please see response to comment for 11.7 Agricultural and Forestry Smoke Management.

8.3.4 Primary Particulate Matter (PM_{10} and $PM_{2.5}$) – *"'Thus, to the extent that these types of activities are found to affect visibility at Northeastern Class I areas, control measures targeted at crustal material may prove beneficial.' Referring to PM coarse and fine contribution, SIP should state that further action on this item is the purview of EPA or state agencies."*

The last sentence in the fourth paragraph in this part has been modified as requested.

9.0 Best Available Retrofit Technology (BART) –

"We understand that NH is currently working on completing draft permits for the two BART-eligible sources discussed below. We request that the state share the temporary permits with the FLMs when available."

Temporary Permit # TO-0008 has been issued for Merrimack Station, a copy of which is provided in Attachment EE of the SIP. No draft permit is available for Newington Station at this time. The required switch to low-sulfur residual fuel oil for this facility will be governed by the proposed rule change to Env-A 1604, Sulfur Content Limitations for Liquid Fuels (see Attachment FF).

Merrimack Station:

"According to the CAM database, the Merrimack Station consists of two coal-fired cyclone boilers with SCR for NOx control and ESPs for PM control, and two oil-fired combustion turbines. Based on the ages of these units, only one coal-fired cyclone boiler, Unit 2, is subject to BART. According to the CAM database, in 2007, emissions from Unit #2 were: 25,000 tpy S02 (@ 2 1b/mmBtu) and 2,200 tpy NOx (@ 0.19 lb/mmBtu).

- *NH concluded that a 90% efficient Flue Gas Desulfurization (FGD) system recently proposed by PSNH represents BART for S02. NH provides no discussion of why this level of control was chosen.*
- *NH concluded that the current 85% efficient SCR system represents BART for NOx. NH provides no discussion of why this level of control was chosen.*
- *NH concluded that the current ESP represents BART for PM. NH provides no discussion of why this level of control was chosen.*
- *In conversation with NH staff regarding this BART determination, we learned that both coal-fired units will be controlled under legislation to reduce mercury emissions and they will share a common stack. In the regional haze SIP, NH should clarify which pollutants are being addressed and identify the associated emission limits, for each pollutant at each boiler.*

"No economic or visibility benefits analysis was conducted because NH stated it was proposing the "most effective control option" for each pollutant. While it may be true that NH has proposed the "most effective control" option for each pollutant, NH is still obligated to evaluate each proposed control technology to determine the appropriate level of control efficiency for each control technology. For example, it is generally assumed that wet scrubbers can achieve at least 95% control efficiency, and that SCR can remove 90% of incoming NOx. NH should show why the Merrimack controls cannot perform as well."

The BART analyses for New Hampshire's two BART-eligible sources have been revised and expanded to provide a more complete description of technology options, control levels, estimated costs, visibility improvements, and reasoning behind the BART determinations. The particular circumstances that distinguish Merrimack Station Unit MK2 from other FGD applications are explained, and the expected SO_2 control level for this facility is clarified. See Section 9, Best Available Retrofit Technology (BART), and Attachment X, BART Analyses for Sources in New Hampshire.

Newington Station:

"According to the CAM database, the Newington Station consists of one oil- and gas-tangentially-fired boiler with an ESP for PM control, and two gas- and oil-fired combined cycle combustion turbines equipped with Dry-Low-NOx Burners and SCR. In conversation with NH staff, we have learned that only the coal-fired Unit #1 is subject to BART. According to the CAM database, in 2007, emissions from Unit #1 were: 2,300 tpy S02 (@ 1 lb/mmBtu) and 415 tpy NOx (@ 0.l6 lb/mmBtu).

- *NH concluded that a FGD system is too expensive. (No cost analysis was provided.) NH proposes that the sulfur limit on the #6 residual oil be reduced to 1%. NH provides no discussion of why this level of control was chosen as BART for S02.*
- *NH concluded that the current combustion controls represent BART for NOx. NH eliminates SNCR ($3,000 - $5.000/ton) and SCR ($5,000 - $6,000/ton) on the bases of costs, but provides no information on how these costs were estimated.*
- *NH concluded that the current ESP, combined with use of cleaner fuel oil, represents BART for PM."*

Newington Station's BART-eligible facility is an oil- and/or natural-gas-fired boiler that has served primarily as a peaking unit for PSNH since 2002. Updated descriptions with revised cost data are provided in Section 9 and Attachment X, including explanations for the determination that existing PM and NOx controls represent BART for this plant. A significant factor in these determinations is the facility's low utilization rate. With respect to SO_2 emissions, the options for lower-sulfur fuels are described and information is presented to support the determination that 1.0%-S residual fuel oil is BART for this unit.

10.2 Identification of (Additional) Reasonable Control Measures – *"Recommend referencing section in 3.0 regarding Canada consultation as source for the input for RPG."*

A parenthetical note has been added making reference to relevant consultations in 3.2.1 New Hampshire-Specific Consultations.

10.2.2 Best Available Retrofit Technology Controls – *"Reference to CAIR satisfying BART in CAIR states."*

The first paragraph has been revised to acknowledge the previous role of CAIR with respect to BART and the possibility of CAIR-successor legislation or rulemaking.

10.2.3 Low-Sulfur Fuel Strategy – *"Concern that not all MANE-VU states have committed to low sulfur fuel oil strategy."*

The first paragraph after the bullets has been revised to include the following statement: "While all MANE-VU states have agreed to pursue implementation of both phases to full effect by the end of 2018, it is possible that not every state can make a firm commitment to these measures today. States are expected to review the situation by the time of the first regional haze SIP progress report in 2012 and to seek alternate, equivalent reductions if necessary."

10.2.4 Targeted EGU Strategy for SO_2 Reductions – *"Reasonableness of Targeted EGU SO2 Reduction Strategy – SIP needs to acknowledge CAIR vacatur."*

The vacatur and remand of CAIR has been noted. Please see response to comment for 1.0 The Regional Haze Issue.

10.2.4 Targeted EGU Strategy for SO_2 Reductions – *"Base case modeling used CAIR as baseline, with the vacatur of CAIR, how will that affect modeling assumptions and outputs?"*

Please see response to comment for 1.0 The Regional Haze Issue.

10.2.4 Targeted EGU Strategy for SO_2 Reductions – *"Recommend clarification…that the 4 factor analysis for the low-sulfur fuel oil strategy was described in Section 10.2.3 of this section."*

The requested clarification has been included.

10.2.5 Non-EGU SO2 Emissions Reduction Strategy for Non-MANE-VU States – *"Non-EGU SO2 Emissions Reduction Strategy for Non-MANE-VU States – Our experience is that non-MANE-VU states have not committed to this 28% reduction from ICI Boilers in their RH SIPs – how does this affect your overall LTS?"*

New Hampshire acknowledges that a number of non-MANE-VU states have not included, or may not include, the requested 28-percent reduction in non-EGU SO_2 emissions in their State Implementation Plans at present. A paragraph to this effect has been added with the advisory that the reasonable progress goals and long-term strategy could be amended as necessary to reflect actual future actions by the non-MANE-VU states by 2012, when the first regional haze SIP progress report is due.

11.3 Existing Commitments to Reduce Emissions – *"Existing Commitments to Reduce Emissions – Recommend providing a reference to future sections for the specifics on control programs assessed, e.g. sections 11.3.1, 11.3.2, and 11.3.3."*

References to Parts 11.3.1, 11.3.2, and 11.3.3 have been added.

11.3.1 Controls on EGUs Expected by 2018 – *"Individual state control programs are highlighted, in addition to North Carolina Clean Smokestacks Act and consent decrees in VISTAS, but CAIR remains the most significant strategy for controls on EGUs."*

The vacatur and remand of CAIR has been noted. Please see response to comment for 1.0 The Regional Haze Issue.

11.4 Additional Reasonable Measures – *"NH's Long Term Strategy includes planned commitments by other states that are not enforceable."*

The text has been expanded to address this matter with more specificity (see 11.11 Enforceability of Emission Limitations and Control Measures).

11.4 Additional Reasonable Measures – *"Admits states 'have agreed to pursue' the suite of additional control measures (i.e., the 'Ask') and 'hopes' non-MANE-VU states do the same or equivalent over the next 10 years."*

The MANE-VU Ask is just that – an agreement among the member states to pursue certain control measures. For its part, NHDES is committed to bringing about these control measures in New Hampshire by helping to prepare the necessary legislation and/or rulemaking that will ensure enforceability. Because the final decisions to adopt specific control measures will reside with New Hampshire's governor and legislature, NHDES cannot provide assurances beyond the present "agreement to pursue." New Hampshire is expecting other states to do their respective parts by taking similar actions. The word "hopes" is not present in the current text.

11.4.1 BART – *"Question of the assumption (which is no longer so) CAIR satisfying BART for the EGU sector."*

The vacatur and remand of CAIR has been noted. Please see response to comment for 1.0 The Regional Haze Issue.

11.4.3 Targeted EGU Strategy – *"Recommend revising last sentence of 1st paragraph to include, '…to mitigating haze pollution in wilderness areas* ***and national parks*** *of the Northeast states.'"*

The suggested wording has been added.

11.4.3 Targeted EGU Strategy – *"Explanation as to why MANE-VU is asking for 90% reduction on targeted EGUs in other RPOs when NH is only netting a 75% reduction from their two BART sources."*

The description of New Hampshire's three targeted EGUs (which include two BART-eligible units) has been expanded with the addition of a new table and text. Total projected SO_2 reductions from these units are conservatively estimated at 81 percent for the present analysis but are more likely to exceed 90 percent in actual performance, as explained in the text.

11.7 Agricultural and Forestry Smoke Management – *"Suggest adding whether or not NH anticipates the potential of smoke impacts to stay the same, increase or decrease by 2018. Also, since Organic Carbon is the second largest contributor to visibility impairment in the MANE-VU region and will become more important for regional haze planning, recommend adding a commitment to track fire emissions in the future. Research would also be helpful in determining whether emissions from wood-burning stoves or fire emissions from agriculture or forestry management are more significant to the region."*

Text has been added stating that New Hampshire has no information indicating that the contribution from smoke emissions will be significantly different from the current situation over the next decade; i.e., this source of fine-particle emissions will continue to be a very minor contributor to visibility extinction in MANE_VU Class I Areas. In addition, a statement has been added declaring New Hampshire's intention to consider ways to improve the inventory of smoke emissions and to achieve a better understanding of the relative importance of the various sources of wood smoke – including agricultural and forestry sources and residential wood stoves – as contributors to regional haze. As noted, the results of these efforts will be documented in the first regional haze SIP progress report in 2012.

11.8 Estimated Effects of Long-Term Strategy on Visibility – *"Suggest ending the explanation of the position of the purple star to state that 'Similarly, the position of the purple star below the dashed line indicates predicted improvements on days of best visibility may be greater than predicted natural background conditions.'"*

The first paragraph below the bullets has been reworded.

11.8 Estimated Effects of Long-Term Strategy on Visibility, Figure 11.1 – *"The light-green dash (–) that represents the theoretical 20 percent best visibility value under natural conditions (i.e., no anthropogenic emissions) at 2064 can not be seen. Same comment true for Figure 11.6 on page 132."*

The missing information has been added to the figures.

11.9 New Hampshire's Share of Emission Reductions – *"Need to deal with CAIR no longer a part of the LTS."*

Please see response to comment for 1.0 The Regional Haze Issue.

11.11 Enforceability of Emission Limitations and Control Measures – *"Whereas the SIP text talks about the specific BART determinations being codified (and hence enforceable) within state law, the enforceability of the other components of the LTS, such as fuel oil strategy and targeted EGU strategy, is not mentioned or dealt with. This is a critical requirement of the SIP, to have all expected (and modeled) emission reductions enforceable throughout the MANE-VU region."*

The text has been expanded to address more specifically the matter of enforceable provisions for New Hampshire's targeted EGUs, BART-eligible EGUs, and use of low-sulfur fuel oil.

Comments from the U.S. Department of Agriculture, U.S. Forest Service

General Comments: USFS also found New Hampshire's Regional Haze SIP to be well written and thorough. The agency observed that New Hampshire's draft SIP was "heavily dependent on the results of CAIR for emission projections, reasonable progress goals, etc." and supported New Hampshire's assumption that CAIR states will "need to reduce emissions commensurate with CAIR to achieve regional haze and other air quality goals." USFS further noted that New

Hampshire is not a CAIR state; will meet its "fair share" of emissions; would experience further delay by waiting for new modeling to be completed; and will have a "perfect opportunity" to review regional haze, post-CAIR, in the 2012 progress report.

General Response: NHDES concurs with the CAIR overview presented by USFS.

Specific Comments/Responses: The following is a point-by-point response to specific comments submitted by USFS. Because the SIP document has been repaginated, reference is made to sections or parts instead of page numbers. **Comments are written in *italics* and responses are written in regular font.**

10.3 Reasonable Progress Goals for Class I Areas in the State, Table 10.8 – *"Worst Day baseline is 22.8 dv, RPG for 2018 is 19.1dv, and Improvement by 2018 is 2.7dv. These numbers do not add up. Is the RPG supposed to be 20.1 or is the improvement supposed to be 3.7 dv?"*

The improvement by 2018 has been corrected to read 3.7 dv.

11.7 Agricultural and Forestry Smoke Management – *"Suggest changes to last paragraph of p 126 to read: 'Nevertheless, New Hampshire intends to consult with the Forest Protection Bureau of the New Hampshire Department of Agriculture and with the New Hampshire Department of Resources and Economic Development (DRED) to consider smoke management in agricultural and forestry practices to address visibility effects at MANE-VU Class I Areas. The results of these efforts will be documented in the first regional haze SIP progress report in 2012.' Shifting smoke impacts from clear and hazy days to other days is not consistent with the intent of the Regional Haze Rule, and all nearby Class I areas need to be considered, not just Great Gulf and Presidential Range - Dry River."*

The suggested rewording has been made.

10.0 Reasonable Progress Goals and 11.0 Long-Term Strategy – *"We feel it would be appropriate for NH DES to discuss the relationship between the Regional Haze Plan and requirements of the Prevention of Significant Deterioration (PSD) program within the SIP. Specifically, how does NH DES anticipate addressing new sources of air pollution in the PSD process in regards to its reasonable progress goals and long term strategy; and how will it analyze the effects of emissions from these new sources on progress toward the interim visibility goals established under this SIP."*

A new subsection, 11.12 Prevention of Significant Deterioration, has been added to the long-term strategy section of the SIP. The additional language describes New Hampshire's PSD program requirements in the context of the Statewide Permit System and federal provisions for visibility protection at Class I areas under the Regional Haze Rule.